

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A membrane comprising a polymeric nonwoven, said nonwoven comprising on and in said nonwoven a ceramic coating which comprises at least one oxide selected from the group consisting of Al_2O_3 , TiO_2 , ZrO_2 and SiO_2 ,

wherein said ceramic coating comprises at least two fractions of oxides selected from the group consisting of Al_2O_3 , ZrO_2 , TiO_2 and SiO_2 , a first ceramic fraction ~~having been~~ obtained from a sol and a second fraction comprising particles having an average particle size in the range from 200 nm to 5 μm , ~~[[and]]~~

wherein the first fraction ~~[[being]]~~ is present as a layer on the particles of said second fraction, ~~and said first fraction comprising from 1 to 30 parts by mass of said coating, said second fraction comprising from 5 to 94 parts by mass of the ceramic coating and also~~

wherein the second fraction comprises a silicon network, the silicon of said network being bonded (i) via oxygen atoms to said oxides of said ceramic coating, (ii) via organic radicals to said polymeric nonwoven and (iii) via at least one carbon chain to a further silicon atom,

wherein said ceramic coating comprises from 1 to 30 parts by mass of the first ceramic fraction and from 5 to 94 parts by mass of the second ceramic fraction.

Claim 2 (Previously Presented): A membrane, obtained by a process as claimed in claim 14.

Claim 3 (Previously Presented): The membrane as claimed in claim 1, wherein said first ceramic fraction comprises particles having an average particle size of less than 20 nm and has been prepared via a particulate sol.

Claim 4 (Previously Presented): The membrane as claimed in claim 1, wherein said first ceramic fraction contains particles or an inorganic network of the ceramic material which were prepared via a polymeric sol.

Claim 5 (Previously Presented): The membrane as claimed in claim 1, wherein said first ceramic fraction has a layer thickness of less than 100 nm on said particles of said second fraction.

Claim 6 (Previously Presented): The membrane as claimed in claim 1, wherein said second particle fraction contains particles having a BET surface area of less than 5 m²/g.

Claim 7 (Currently Amended): The membrane as claimed in claim 1, wherein said polymeric nonwoven comprises polymeric fibers selected from the group consisting of fibers of polyethylene, polyacrylonitrile, polypropylene, polyamide [[and/or]] and polyester.

Claim 8 (Previously Presented): The membrane as claimed in claim 1, wherein said coating comprises at least three fractions of oxides selected from the group consisting of Al₂O₃, ZrO₂, TiO₂ and SiO₂, a third fraction comprising particles having an average primary particle size in the range from 10 nm to 199 nm and said first fraction being present as a layer on said particles of said second and third fractions and said first fraction comprising from 1 to 30 parts by mass of said ceramic coating, said second fraction comprising from 30 to 94 parts by mass of said ceramic coating and said third fraction comprising from 5 to 50 parts by mass of said ceramic coating.

Claim 9 (Currently Amended): The membrane ~~[[as]]~~ as claimed in claim 8, wherein said third particle fraction contains particles having a BET surface area in the range from 10 to 1 000 m²/g.

Claim 10 (Previously Presented): The membrane as claimed in claim 8, wherein said third particle fraction contains particles having an average aggregate or agglomerate size in the range from 1 to 25 µm.

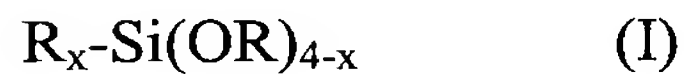
Claim 11 (Previously Presented): The membrane as claimed in claim 8, wherein said second fraction comprises particles having an average primary particle size in the range from 30 nm to 60 nm and said third fraction comprises particles having an average particle size in the range from 1 to 4 µm and said first fraction comprises from 10 to 20 parts by mass of said ceramic coating, said second fraction comprises from 10 to 30 parts by mass of said ceramic coating and said third fraction comprises from 40 to 70 parts by mass of said ceramic coating.

Claim 12 (Currently Amended): The membrane as claimed in claim 8, wherein said particles of said third fraction are zirconium oxide ~~or preferably silicon oxide particles~~ and said particles of said second fraction are aluminum oxide particles and said first ceramic fraction is formed from silicon oxide.

Claim 13 (Previously Presented): The membrane as claimed in claim 1, wherein the membrane is bendable down to a radius of 5 mm without defects arising as a result.

Claim 14 (Previously Presented): A process for producing a membrane, comprising providing a polymeric nonwoven with a ceramic coating in and on said nonwoven by a

suspension being applied onto and into said polymeric nonwoven and being solidified on and in said nonwoven by heating one or more times, said suspension comprising a sol and at least one fraction of oxidic particles selected from the oxides of the elements Al, Zr, Ti and/or Si and said suspension having added to it prior to application a mixture of at least two different adhesion promoters which are each based on an alkylalkoxysilane of the general formula I



where $x = 1$ or 2 and R = organic radical, the R radicals being the same or different, said adhesion promoters being selected so that both the adhesion promoters comprise alkyl radicals which at least each comprises a reactive group as a substituent, said reactive group on said alkyl radical of one adhesion promoter reacting with said reactive group of the other adhesion promoter during the one or more heating steps to form a covalent bond, or one or more adhesion promoters as per the formula I, which have reactive groups which are capable of reacting under the action of UV radiation to form a covalent bond, the addition of an adhesion promoter which reacts under the action of UV radiation being followed by one or more treatments with UV radiation after said suspension has been applied to said polymeric nonwoven.

Claim 15 (Previously Presented): The process according to claim 14, wherein the fibers of said polymeric nonwoven used are at least one selected from the group consisting of polyester, polyethylene, polypropylene and polyamide.

Claim 16 (Previously Presented): The process according to claim 14, wherein said suspension comprises at least one sol of a compound of the elements Al, Si, Ti or Zr and is prepared by suspending said fraction of oxidic particles in at least one of these sols.

Claim 17 (Previously Presented): The process according to claim 14, wherein said suspension comprises a polymeric sol of a compound of said silicon.

Claim 18 (Previously Presented): The process according to claim 14, wherein said sols are obtained by hydrolyzing a precursor compound of the elements Al, Zr, Ti or Si with water or an acid or a combination thereof.

Claim 19 (Previously Presented): The process according to claim 14, wherein the mass fraction of the suspended particle fractions is from 1.5 to 150 times the employed first fraction from said sol.

Claim 20 (Currently Amended): The process according to claim 14, wherein the adhesion promoters comprise 3-aminopropyltriethoxysilane (AMEO) and the adhesion promoters comprise 3-glycidyloxytrimethoxysilane (GLYMO)~~are used as adhesion promoters capable of forming a covalent bond on heating.~~

Claim 21 (Currently Amended): The process according to claim 14, ~~wherein~~ comprising:

reacting a methacryloyloxypropyltrimethoxysilane (MEMO) [[is used]] as an adhesion promoter ~~capable of forming a covalent bond~~ under the action of UV radiation.

Claim 22 (Currently Amended): The process according to claim 21, wherein the ~~treatment~~ reacting with UV radiation is effected before or after said at least single heating.

Claim 23 (Previously Presented): The process according to claim 14, wherein said suspension present on and in said polymeric nonwoven is solidified by heating to a temperature in the range from 50 to 350°C.

Claim 24 (Previously Presented): The process according to claim 23, wherein on a polymeric nonwoven comprising polyester fibers said suspension is heated at a temperature in the range from 200 to 220°C for from 0.5 to 10 minutes.

Claim 25 (Previously Presented): The process according to claim 23, wherein on a polymeric nonwoven comprising polyamide fibers said suspension is heated at a temperature in the range from 130 to 180°C for from 0.5 to 10 minutes.

Claim 26 (Currently Amended): The process according to claim 14, wherein said suspension comprises at least one sol and at least two fractions of oxidic particles, ~~selected from the oxides of the elements Al, Zr, Ti and/or Si~~ wherein the oxidic particles are selected from the group consisting of oxides of Al, oxides of Zr, oxides of Ti, and oxides of Si, and at least one fraction has an average primary particle size in the range from 10 nm to 199 nm and comprises from 5 to 50 parts by mass of said suspension and at least one fraction comprises primary particles having an average particle size in the range from 200 nm to 5 µm and comprises from 30 to 94 parts by mass of said suspension.

Claim 27 (Canceled).

Claim 28 (Previously Presented): A lithium battery comprising a membrane as claimed in claim 1 as a separator.

Claim 29 (Previously Presented): A filtration apparatus comprising a membrane as claimed in claim 1.

Claim 30 (Previously Presented): A method for filtration comprising utilizing the membrane as claimed in claim 1 as a filtration membrane.

Claim 31 (Previously Presented): A method for separating electrical components comprising utilizing the membrane as claimed in claim 1 as an electrical separator wherein the membrane does not contain titanium compounds.

Claim 32 (New): The membrane as claimed in claim 12, wherein the particles of the third fraction are silicon oxide particles.

Claim 33 (New): The membrane of claim 1, wherein the silicon network comprises reacted units of at least two different silicon-containing adhesion promoters.

Claim 34 (New): The membrane of claim 33, wherein the at least two different adhesion promoters are selected from the group consisting of 3-aminopropyltrimethoxysilane, 3-glycidyloxytrimethoxysilane, and 3-methacryloyloxypropyltrimethoxysilane.